Trends in Land Use in the Face of *Parthenium* Invasion in Kenya

Future Rural Africa

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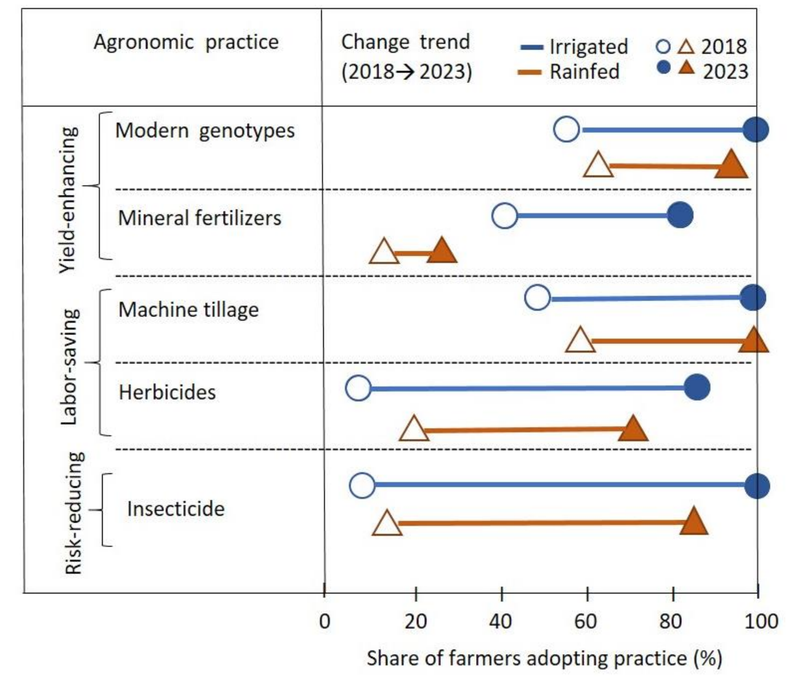
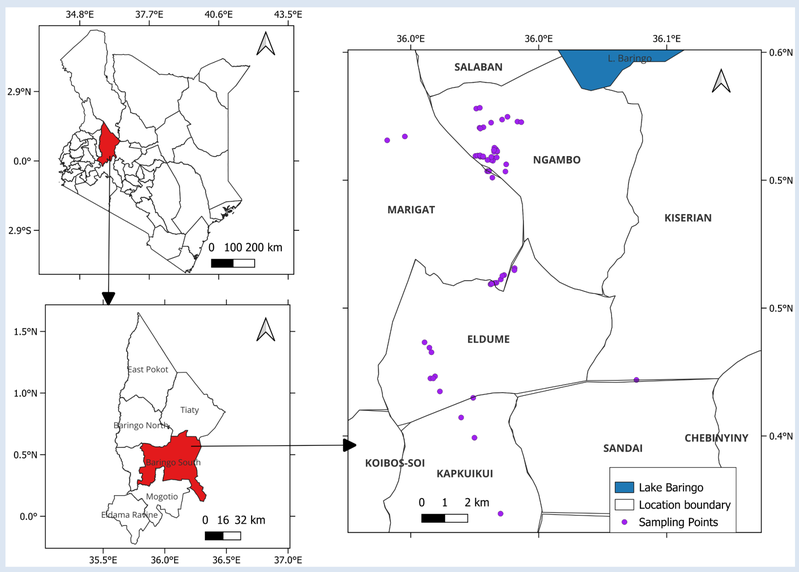
Introduction

- The Kenyan Rift Valley is undergoing a significant change in land use
- Land users are transitioning from semi-nomadic pastoralism to agro-pastoralism
- There is a rise in new land systems and intensified agricultural production
- Land system transition is linked to the presence of invasive *Parthenium hysterophorus*

Results: Recent change of practices



Study Area

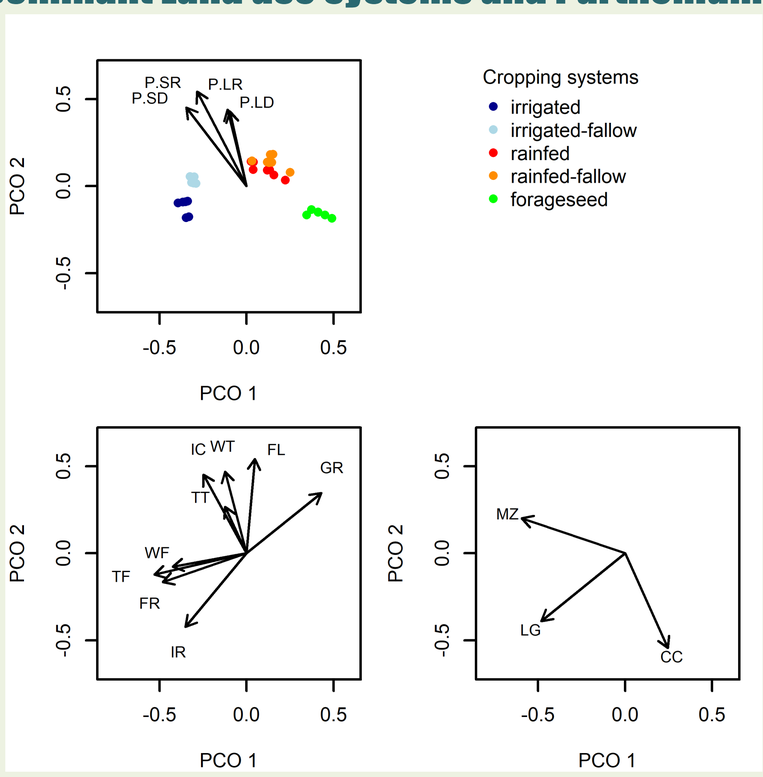


- Baringo County, Kenya
- Total annual rainfall is 500-700 mm
- The annual mean temperature ranges from 12 to 25 °C
- Soil types are clay loam Fluvisol soils

Key Findings

- We identified key land use systems (five cropping systems + rangeland)
- There is an increased adoption of yield-enhancing, labor-saving, and risk-reducing practices in crop production
- Parthenium occurred in all land systems except forage seed production systems
- Parthenium abundance correlated with agronomic practices
- Specifically favored by combination of disturbance and fallow periods

Results: Dominant Land use systems and Parthenium



Agromomic practices: irrigation (IR), fertilizer use (FR), frequency of tillage (TF), frequency of weeding (WF), type of tillage (TT), insecticide use (IC), type of weeding (WT), fallow length (FL), Grazing (GR). M**ain crops:** *Cenchrus ciliaris* (CC), legumes (LG) and maize (MZ). **Seasonal Parthenium abundance** in short rainy season (P.SR), long rainy season (P.LR), short dry season (P.SD), and long rainy season (P.LD)

Methods

- Cross-sectional field survey to identify dominant land systems
- Household survey involving 67 farmers on change in agronomic practices in the past (2018) and present (2023)
- Parthenium density measurement within six land systems, across 50 farms
- Sampling was done in the wet and dry seasons in 2023

Results: Parthenium invasion


along a water channel


on fallow land


in irrigated cropland


non-invaded forage seed system

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